

***Remarks***

Reconsideration of this Application is respectfully requested. Claims 1-51 are pending in the application, with claims 1, 9, and 18 being the independent claims. Based on the following remarks, Applicants respectfully request the Examiner reconsider and withdraw all outstanding rejections.

**Rejections under 35 U.S.C. § 112**

Claims 1-51 are rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Specifically, the Examiner states that "it is unclear as to what is meant by '1/s, where s is an integer greater than one'. The 1/s is unclear what is its intention or purpose (i.e. functionality) for the claim's limitation."

In claims 1, 9, and 18, the term "wherein  $M=kN$  and k is one of an integer greater than one and 1/s, where s is an integer greater than one," provides a ratio of the number parallel digital process paths (M) to the number of analog-to-digital converter ("ADC") paths (N). The term is functionally equivalent to  $M \neq N$ . For example, when k is "an integer greater than one,"  $M > N$ . When  $k=1/s$ , (e.g., when  $k = \frac{1}{2}, \frac{1}{3}, \frac{1}{4} \dots$ ),  $M < N$ . The claim scope is thus ascertainable. Reconsideration and withdrawal of the rejection is requested.

**Rejections under 35 U.S.C. § 103**

On page three of the Office Action, claims 1-42 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over European Patent No. 1006697 to Azadet et al (herein "Azadet") in view of Electrical Signal Processing Techniques in Long-Haul, Fiber Optic Systems (IEEE Transactions on Communications, Vol. 38, No. 9, September

1990, pp. 1439-1453) by Winters et al (herein "Winters"). Applicants respectfully traverse.

Neither Azadet nor Winters, alone or in combination, teach or suggest M parallel digital processing paths and N ADC paths, wherein  $M \neq N$ , as recited in independent claims 1, 9, and 18. Azadet only teaches  $M=N$ . Specifically, FIGS. 1, 3, and 5 of Azadet, as well as paragraphs [0008] - [0010] and [0018] teach only an arbitrary number "N" of sampling signals with "N" ADCs and an "N" path parallel digital process. Therefore, Azadet teaches only an equal number of sampling signals, ADCs, and digital process paths.

Winters does not overcome the deficiencies of Azadet. Specifically, Winters does not address a number of ADC paths, nor a ratio of a number of ADC paths (N) to a number of parallel digital process paths (M), and thus does not teach or suggest  $M \neq N$ , as recited in claims 1, 9, and 18.

Claims 2-8 and 25-30, depend from claim 1. Claims 10-17 and 31-36 depend from claim 9. Claims 19-24 and 37-42 depend from claim 18. Claims 2-8, 10-17, and 19-42 are thus allowable for at least the reasons provided above with respect to claims 1, 9, and 18, and further in view of the additional features recited therein. Reconsideration and withdrawal of the rejection is requested.

On page fourteen of the Office Action, claims 43-51 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Azadet in view of Winters and further in view of *Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come* (IEEE Communication Magazine, May 1990, pp. 5-14) by John A. Bingham (herein "Bingham"). Applicants respectfully traverse.

Claims 43-51 depend upon independent claims 1, 9, and 18. As discussed above, neither Azadet nor Winters teach or suggest  $M \neq N$ , as recited in independent claims 1, 9, and 18. Bingham does not cure the deficiencies of Azadet and Winters. Claims 43-51 are thus patentable for at least the reasons provided above with respect to claims 1, 9, and 18, and further in view of the additional features recited therein. Reconsideration and withdrawal of the rejection is requested.

***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request the Examiner reconsider and withdraw all presently outstanding rejections. Applicants believe a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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